

(d) processing said current relative wind speeds to determine if a dangerous localized condition exists in front of said aircraft.

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12. [New] A detection system for detecting the presence of a dangerous localized condition in front of an aircraft, said system comprising:

a laser for transmitting a first portion of a series of optical pulses in front of said aircraft;

a receiver for detecting back scattered light from said transmitted optical pulses;

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delay means for delaying a second portion of said series of optical pulses for a time period substantially corresponding to the time of flight of said back scattered light; and

first comparison means for comparing said delayed second portion with said back scattered light so as to determine a wind velocity and direction, relative to said aircraft at a series of distances corresponding to said time of flight of each pulse; and

second comparison means for comparing the wind velocity at said series of distances to determine if a dangerous localized atmospheric condition is present.

13. [New] A detection system to predict the presence of a dangerous localized atmospheric condition along the flight path of an aircraft during the critical landing and take off phase comprising:

high powered solid state laser for transmitting a light beam; and

receiver to capture a second back scattered light beam from the first beam; and

a means to provide a third light beam as a sample of the first beam; and

solid state module to delay said third beam for a time corresponding to the transit time of the second light beam and the first light beam; and

solid state detector to detect a differential response of the second light beam to the response of third light beam; and

solid state computer to record and store a wind velocity measurement.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, LLP

By

Alan E. Kopecki

Registration No. 25,813

Post Office Box 1404  
Alexandria, Virginia 22313-1404  
(703) 836-6620

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